

REMARKS

The Office Action of December 19, 2005 has been received and its contents carefully considered.

Claims 2, 19-21, 23 and 24 are all the claims pending in the application, prior to the present amendment.

Applicants have amended independent claims 2, 23 and 24 to recite that the moldings are fire retardant moldings, to recite that the base and intermediate layers are free from any fire-retarding agent and to recite that the chlorination degree of the vinyl chloride resin in these layers is 60 to 67%. In addition, applicants have added new independent claims 25 to 28. Claims 25 to 28 recite various layers that are free from any fire-retarding agent, and recite a chlorination degree of 60 to 67%.

The amendment to claims 2, 23 and 24 to recite “free from any fire-retarding agent” are supported at page 5, line 25 to page 6, line 12, in the present specification (including the phrase that “the fire retardant property is improved without including a fire-retardant agent and an inorganic filler”).

Further, in Example 10 of the present specification, the base layer comprises composition B, which contains neither titanium nor fire-retarding agent. Composition B consists of a PVC with a chlorination degree of 64%, tin based stabilizer, a lubricant and an MBS reinforcing agent. The intermediate layer consists of composition B’, which contains neither any titanium compound nor any fire-retarding agent. Compositions B and B’ are different only in the amount of the lubricant.

The phrase “chlorination degree of 60 to 67%” in the present claims is supported at page 18, line 20, at page 23, line 1, at page 45, line 17 to page 46, line 3 in the present specification.

Applicants have also amended claim 23 to recite the term “a tin oxide containing antimony”, which is supported at page 38, lines 8 to 13 in the present specification, and to recite the total light transmittance of the molding, the haze value and surface resistivity. See page 41, lines 3 and 4 (light transmittance and haze value), and page 35, line 20 to page 36, line 14, and page 39, lines 7 to 26 (surface resistivity).

The recitations in new claim 25 are supported at page 23, line 22 to page 24, line 9, at page 37, line 14 to page 38, line 7, at page 41, lines 3 and 4, and at page 50, lines 11 to 16 in the present specification.

The term “surface resistivity” in new claim 26 is supported at page 35, line 20 to page 36, line 14, and at page 39, lines 7 to 26 in the present specification.

The recitations in new claims 27 and 28 are supported at page 51, line 24 to page 52, line 22 in the present specification.

Claims 2, 19-21 and 24 have been rejected under 35 U.S.C. § 103(a) as obvious over JP ‘520 in view of Yoshizumi.

The Examiner sets forth a detailed statement of this rejection in Paragraph 4, beginning at page 2 of the Office Action.

Applicants note that this statement of the rejection, as well as the remaining rejections in the Office Action, does not include claim 23. The Office Action Summary, however, states that claim 23 is rejected. Accordingly, undersigned counsel called the Examiner and asked for

clarification concerning the status of claim 23. The Examiner advised that claim 23 was intended to be included in the present rejection of Paragraph 4.

In this rejection, the Examiner now relies on Paragraphs [0153], [0132] and [0151] of JP ‘520. The Examiner had not specifically relied on these paragraphs in previous rejections that were based on JP ‘520.

Paragraph [0153] of JP ‘520 discloses molding D4. In the Amendment Under 37 C.F.R. § 1.116 that was filed on July 25, 2005, molding D4 was discussed at page 46. In now reviewing that discussion, applicants see that the discussion at page 46 contained a typographical error in that it said that the surface layer comprised a vinyl chloride resin having a degree of chlorination of 50%. The degree of chlorination that is described in Paragraph [0153] for the surface layer is 56%. This correction, however, does not change the thrust of the arguments that applicants submitted.

In the present Office Action, the Examiner recognizes that JP ‘520 does not disclose the same degree of chlorination of the intermediate layer that is claimed in claim 2, or the chlorination degree of the antistatic layer claimed in claim 19.

The Examiner asserts that JP ‘520 teaches that the chlorination degree of the polymer will affect its fire resistance, thermal stability and moldability. The Examiner argues that, therefore, it would have been obvious to control the chlorination degree of the vinyl chloride binder of the intermediate and antistatic layers. The Examiner asserts that the motivation for doing so would have been to control the moldability of the laminate and its thermal stability and fire resistance.

Paragraph [0153] of JP '520 describes a molding D4 in which a PVC with a chlorination degree of from 58 to 73% and a phosphorous based fire-retarding agent are used for the base layer, and in which a PVC with a chlorination degree of 56% and a zinc compound and a tin system stabilizer are used for a surface layer having a thickness of 0.4 to 2 mm to achieve fire resistance for the surface layer.

Although the base layer in JP '520 uses a PVC having a chlorination degree that has a broad range that encompasses the range set forth in the present claims, a fire-retarding agent is used in JP '520. Thus, JP '520 does not teach exclusion of the fire-retarding agent from this base layer, and there is no description suggesting such an exclusion. As discussed above, applicants have amended claims 2, 23 and 24 to exclude a fire-retarding agent from the base layer. Claims 25 and 26 also exclude a fire-retarding agent from the base layer. JP '520 does not disclose or suggest this exclusion, or the exclusion of a fire-retarding agent in the intermediate layer of the present invention.

Moreover, since the composition of JP '520 contains a phosphorous based fire-retarding agent, it is impossible to achieve good transparency. The present invention uses a PVC with a chlorination degree of from 60 to 67% in order to make the molding fire retardant, even without using a fire-retarding agent, and thus has succeeded in the improvement of transparency.

Moreover, the surface layer of JP '520 (which would correspond to the intermediate layer of claims 2 and 23 to 28), whose thickness is from 0.4 to 2 mm and which uses a PVC with a chlorination degree of 56%, must necessarily be incorporated with a fire-retarding agent. A zinc compound is employed as a fire-retarding agent in the case set forth in paragraph [0153] of JP

'520. If no fire-retarding agent is used in the surface layer of JP '520, the resulting molding never becomes fire retardant. See page 43, line 25 to page 45, line 16 of the present specification. Since, in the present invention, a PVC with a chlorination degree of 60 to 67% is used and, at the same time, the thickness is adjusted to from 30 to 350 μm (or 50 to 350 μm in claim 24) to secure fire retardant property, there occurs no problem when such an intermediate layer is laminated with a base layer.

In JP '520, a double-layer structure consisting of a base layer and a surface layer is adopted. Thus, if both layers use a PVC having the same chlorination degree, adoption of a double-layer structure is unnecessary and a single layer will suffice. The purpose of adopting a double-layer structure in JP '520 is to impart a special function further to the surface layer, and paragraph [0153] states that chemical resistance is improved by using a PVC with a chlorination degree of 56%.

However, in the present invention, owing to the existence of the intermediate layer, function imparting is unnecessary. And, one may take into consideration aspects such as fire-retardant property, ease of lamination of the base layer with the antistatic layer, the behavior in the integration by lamination, handleability, rolling-up property, etc., whereby there is no inevitability of altering the chlorination degree of 56% in the surface layer of JP '520 to 60-67%. The Examiner states that alteration from 56% to 60-67% is easy by considering fire-retarding property. But, if only fire-retarding property is considered, a fire-retarding agent may be incorporated to the 56% PVC, or alternatively, the layer thickness may be reduced, and thus

there is no necessity or suggestion of using a PVC with a chlorination degree of from 60 to 67% in JP '520.

With respect to the thickness of the surface layer, the Examiner does not provide any reason as to why one of ordinary skill in the art would be led to reducing the thickness of the surface layer of JP '520 to 30 to 350 μm as set forth in claims 2 and 23 and 50 to 350 μm as set forth in claim 24.

While the surface layer of JP '520 has a thickness of from 0.4 to 2 mm, the intermediate layer of the present invention as recited in claims 2 and 23 has a thickness of from 30 to 350 μm and as recited in claim 24 has a thickness of 50 to 350 μm . Thus, the thickness of the intermediate layer of the present invention falls outside the thickness range for the surface layer of JP '520. This intermediate layer of the present invention is for the lamination of the antistatic layer, having nothing to do with the function of the molding. Since the molding imparts its property to the base layer, the best solution is the case where the base layer occupies the total thickness of the molding. However, in the present invention, an intermediate layer is needed to laminate the antistatic layer.

For the purpose, within the range of not adversely affecting manufacture, it is desirable to make the intermediate layer as thin as possible and impart fire-retarding property thereto. As a result, in the present invention, the thickness range of from 30 to 350 μm or 50 to 350 μm has been chosen. With a thickness not less than 0.4 mm as in JP '520, it not only becomes difficult to make the layer fire-retardant, but also the layer loses flexibility, requires a high manufacturing cost. Further, the resulting product will not be readily rolled up, making the manufacture

difficult. Accordingly, applicants submit that JP '520 does not suggest the thickness of the intermediate layer recited in the present claims.

The Examiner states that JP '520 does not disclose whether the base layer and surface layer are free of titanium dioxide. The Examiner argues that since JP '520 does not contain any discussion with respect to the addition of titanium dioxide to the base layer or surface layer of molding D4, and since molding D4 is taught to be transparent, the Examiner concludes that the base layer and surface layer of molding D4 is free of any titanium compounds.

In response, applicants point out that a molding free from titanium oxide does not always become transparent only with this condition. In general, it is certain that inclusion of titanium oxide makes the molding opaque, but, even without incorporation of titanium oxide, alternatively when another inorganic filler, colorant, reinforcing agent or the like, which has a different refractive index, is incorporated, the resulting molding may become opaque. When the chlorinated polyethylene set forth in paragraph [0153] of JP '250 is used, the molding does not become transparent.

Accordingly, the molding is not transparent, but opaque. Moreover, there are many kinds of phosphorus based fire-retarding agents, among which some make the molding opaque. In order to make the molding transparent, it is necessary to comprehensively judge from the total composing result, whereby, with an undesirable combination, the composition becomes opaque in spite of each ingredient being transparent of itself.

The Examiner relies on Paragraph [0151] of JP '520 for a teaching that the base layer has a thickness of 2 to 14 mm. Paragraph [0153] specifically states that the base layer has such a thickness. Paragraph [0151] does not contain such a teaching.

With respect to the antistatic layer set forth in claims 2, 19, 23 and 24, the Examiner recognizes that JP '520 does not teach that the molded object may be coated with an antistatic composition. The Examiner relies on the previously cited patent to Yoshizumi for such a teaching.

Yoshizumi was discussed at pages 47-49 of the Amendment Under 37 C.F.R. § 1.116 that was filed on July 25, 2005. Applicants continue to rely on those arguments, with the clarification that at page 47 of the Amendment, the thickness of the intermediate layer of claim 2 is 30 to 350 μm , instead of 30 to 500 μm .

The Examiner relies on the disclosure in Yoshizumi of the use of the tin oxide in an antistatic layer. This disclosure relates to the recitations in claim 23. The Examiner does not address in this rejection, the recitations in claim 24 of the thin long carbon fiber. Yoshizumi do not disclose or suggest the use of the ultra thin long carbon fiber set forth in claim 24.

In view of the above, applicants submit that claims 2, 19-21 and 23 to 27 are patentable over JP '520 and Yoshizumi and, accordingly, request withdrawal of this rejection.

Claim 2 has been rejected under 35 U.S.C. § 103(a) as obvious over JP '520 in view of Holley.

The Examiner sets forth a detailed statement of this rejection in Paragraph 5, beginning at the bottom of page 4 of the Office Action.

This rejection is similar to the rejection in Paragraph 4 above, except that the Examiner relies on US Patent 5,508,343 to Holley as a secondary reference instead of Yoshizumi as a secondary reference.

The Holley patent was discussed at pages 50 and 51 of the Amendment Under 37 C.F.R. § 1.116 filed on July 25, 2005. Applicants continue to rely on these arguments with respect to Holley.

In view of the above, applicants request withdrawal of this rejection.

Claims 2 and 24 have been rejected under 35 U.S.C. § 103(a) as obvious over JP '520 in view of the newly cited JP 11-353947 to Sakai.

The Examiner sets forth a detailed statement of this rejection in Paragraph 6, beginning at the bottom of page 6 of the Office Action.

In this rejection, the Examiner relies on the newly cited patent to JP '947 as a secondary reference for a teaching of a transparent antistatic layer made of a thermoplastic resin having a thickness of 0.015 to 2.5 μm , in which an entangling ultra-long carbon fiber is included in an amount of 2 to 15 wt%, in a surface of a transparent thermoplastic base material. The Examiner refers to the Abstract of JP '947.

Applicants rely on the arguments set forth above in connection with the rejection in Paragraph 4 to distinguish over JP '520.

Further, JP '947 discloses a molding in which an antistatic layer containing ultra thin long carbon fiber and having a thickness of from 0.15 to 3.5 μm is laminated on the surface of a transparent resin substrate without using an intermediate layer.

As the substrate of JP '947, a variety of thermoplastic resins can be used, and PVC is also set forth. But it mentions simply PVC, and does not explicitly indicate a PVC with a chlorination degree of from 60 to 67%. Accordingly, generally speaking, to make the resin composition fire retardant, incorporation of a fire-retarding agent is necessary. See the discussion above in connection with the rejection in Paragraph 4 of the Office Action. Similarly, JP '947 does not disclose or suggest a chlorination degree of 60 to 67% for a base layer. In addition, JP '947 states that the same resins can be used also for the antistatic layer, and does not explicitly indicate a PVC with a chlorination degree of from 60 to 67%.

Further, applicants point out that JP '947 merely discloses the use of an antistatic coating and a base material, that JP '947 does not contain any information on the use of a base layer that comprises a vinyl chloride resin having a chlorination degree of from 60 to 67% and free from any titanium compound and any fire-retarding agent, wherein the thickness of the base layer is from 1 to 15 mm, in combination with the use of an intermediate layer that comprises a vinyl chloride resin having a chlorination degree of from 60 to 67% and free from any titanium compound and any fire-retarding agent, and has a composition different from that of the base layer, wherein the thickness of the intermediate layer is from 30 to 350 μm (claim 2) or 50 to 350 μm (claim 24).

In view of the above, applicants submit that JP '520 and JP '947 do not disclose or render obvious the subject matter of claims 2 and 24 and, accordingly, request withdrawal of this rejection.

AMENDMENT UNDER 37 C.F.R. § 1.111
Application No. 09/964,693

ATTORNEY DOCKET NO. Q66444

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

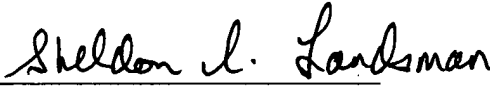
Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER


Sheldon I. Landsman
Registration No. 25,430

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